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Docket: NECN 18.304 (100933-16778)
Application: Serial No. 09/775,927

REMARKS

Claims 1-7 and 9-17 are pending in the instant application. In view of the following remarks, reconsideration of the present application is respectfully requested.

Applicants note with appreciation that the Examiner continues to indicate that claims 5-7, 9, 11, and 12 are allowable. Applicants also note with appreciation that the Examiner now indicates that claims 2-4 and 10 are directed to allowable subject matter.

REJECTIONS UNDER 35 U.S.C. §102 and §103

Claims 1, 13, and 15-17 are rejected under 35 U.S.C. § 102(a) as being anticipated by United States Patent No. 5,433,887 to Osaka (hereinafter referred to as Osaka). Applicants respectfully traverse.

Claim 1 relates to a quadrature modulation that includes, *inter alia*, a quadrature modulation block that includes a ***frequency divider*** that receives a converted oscillation frequency and ***divides said converted oscillation frequency by a factor of two to output a pair of orthogonal signals having therebetween a phase difference of 90 degrees***. The quadrature modulator of claim 1 further includes first and second multipliers modulating said pair of orthogonal signals with said baseband signal to output a pair of modulated signals. In the quadrature modulation block of claim 1, said carrier signal has a frequency different from said converted oscillation frequency and any signal frequency generated within said frequency conversion block.

The Examiner asserts that Osaka discloses all of the features of claim 1 in figure 6. In particular, the Examiner asserts that element 61 of figure 6 of Osaka discloses a frequency divider as recited in claim 1 (Office Action; page 2, bottom). However, element 61 does not have

two output lines, and therefore cannot output a pair of orthogonal signals having therebetween a phase difference of 90 degrees, as recited in claim 1. Osaka discusses element 61 in the following section:

> In the frequency synthesizer 53, the output signal (frequency f2) of a voltage controlled oscillator 57 and the output signal (frequency f1) of an oscillator 59 are mixed by a mixer 58 to generate the signal of carrier frequency f through a band pass filter 60. This carrier frequency signal is output to the quadrature modulator 10 as the carrier wave while being output to a frequency divider 61, which may change its frequency dividing ratio 1/N according to the control signal CS. ***The carrier frequency signal divided in frequency into 1/N by the frequency divider 61 is input to a phase comparator 54.*** The phase difference between the output signals of the frequency divider 52 and 61 is detected by the phase comparator 54, and is converted into the voltage by a charge pump 55 to input to the voltage controlled oscillator 57 as the control voltage through a low pass filter 56. In this manner, the frequency synthesizer 53 may stably supply the carrier wave of frequency f synchronizing with the phase of the reference oscillator 51 to the quadrature modulator 10. Further, since the carrier wave can be generated with a single frequency synthesizer, its arrangement may be simplified.

(Osaka; col. 4, lines 1-23; emphasis added). Therefore, as is apparent from the emphasized section of Osaka, not only does element 61 of Osaka not disclose a frequency divider that outputs a pair of orthogonal signals, the output of element 61 is not modulated by the first and second multipliers, which the Examiner asserts are disclosed by elements 2 and 3 of Osaka (Office Action; page 2, bottom). Therefore, for at least this reason, claim 1 is allowable.

There is also no indication that, in the system of Osaka, the carrier signal has a frequency different from a converted oscillation frequency and any signal frequency generated within said frequency conversion block. Therefore claim 1 is allowable for at least this additional reason.

Independent claim 13 relates to a method that includes, *inter alia*, dividing said converted oscillation frequency by a factor of two to output a pair of orthogonal signals having

therebetween a phase difference of 90 degrees. Claim 13 also includes modulating said pair of orthogonal signals with a baseband signal to output a pair of modulated signals. In claim 13, modulating said pair of orthogonal signals with a baseband signal to output a pair of modulated signals; and wherein said carrier signal has a frequency different from said converted oscillation frequency and any signal frequency generated within said frequency conversion block.

Claim 13 is therefore allowable over Osaka for at least the same reasons as claim 1 is allowable.

Claims 15-17 depend from claim 13 and are therefore allowable for at least the same reasons as claim 13 is allowable.

Claim 14 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Osaka in view of United States Patent No. 4,638,180 to Sagawa et al. (hereinafter referred to as Sagawa). Applicants respectfully traverse.

Claim 14 depends from claim 13, and the addition of Sagawa fails to cure the critical deficiency discussed above as regards Osaka as applied against claim 13. Therefore claim 14 is allowable allowable for at least the same reasons as claim 13 is allowable.

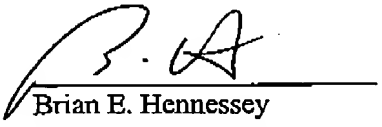
SUMMARY

As has been detailed above, none of the references, cited or applied, provide for the specific claimed details of applicants' presently claimed invention, nor renders them obvious. It is believed that this case is in condition for allowance and reconsideration thereof and early issuance is respectfully requested.

As this response/amendment has been timely filed, no request for extension of time or associated fee is required. However, the Commissioner is hereby authorized to charge any

deficiencies in the fees provided to Deposit Account No. 50-1290. If it is felt that an interview would expedite prosecution of this application, please do not hesitate to contact applicant's representative at the below number.

Respectfully submitted,



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